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Patent Number: JP5175143
Publication date: 1993-07-13
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Requested Patent: ☐ JP5175143
Application Number: JP19910344554 19911226
Priority Number(s):
IPC Classification: H01L21/205; H01L21/365
EC Classification:
EC Classification:
Equivalents: JP3189061B2

Abstract

PURPOSE:To obtain a steep impurity distribution by doping an atomic layer to a high concentration to suppress the diffusion of the impurity of the atomic layer in the manufacture of a ternary or higher compound semiconductor device through an epitaxial organometal vapor-phase growth method, etc.
CONSTITUTION:Impurity diffusion suppression layers 4, 6 thinner than a critical film thickness are grown in the lower layer and upper layer of an atomic layer doping layer 5. In this case, when a compound semiconductor is a ternary III-V compound semiconductor and the impurity diffusion suppression layers 4, 6 of the lower and upper layers of the atomic layer doping layer are binary compound semiconductors (e.g. GaP and InP) in which only group III elements are different or binary compound semiconductors in which only group V elements are different and a diffusion occurs between both impurity diffusion suppression layers, the composition of both suppression layers can be the same as that of the ternary III-V compound semiconductor 3, 7 (e.g. InGaP) further in the lower or upper layer of those suppression layers.